

WHAT IS CLAIMED IS: ¹⁰Patent Claims

1. Method for measuring the transmission quality of a transmission channel (4) via which an information is transmitted,

whereby the transmitter implements the following steps:

- representing the information in the form of symbols,
- mapping the symbols onto signal values and
- transmitting the signal values via the transmission channel (11);

whereby the receiver implements the following steps:

- receiving the transmitted signal values (14) [sic],
- mapping the received signal values (21) onto detected symbols (9) and
- converting the detected symbols (9) into a detected information;

and whereby the measuring method comprises the following steps:

- forming a reference signal (15) by mapping successive, detected symbols (9) onto signal values and
- calculating the transmission quality (22, 23) of the transmission channel (4) based on the reference signal (15) and on the received signal values (14).

2. Method according to claim 1, characterized in that the step for the calculation of the transmission quality (22) implements the following steps:

- determining a noise signal part (27) of the received signal values (14) upon employment of the reference signal (15);
- calculating the transmission quality (22) of the transmission channel (4) based on the reference signal (15) and the noise signal part (27).

3. Method according to claim 2, characterized in that, for calculating the transmission quality,

- the average power (S, N) of the reference signal (15) and of the noise signal part is determined; and
- to signal-to-noise ratio (22) is calculated as criterion for the transmission quality based on the average power (S) of the reference signal (15) and on the average power (N) of the noise signal part.

4. Method according to claim 2 or claim 3, characterized in that the average power (N) of the noise signal part is calculated by determining the

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average power of the difference of the received signal values (14) and the reference signal (15).

5 5. Method according to claim 2 or claim 3, characterized in that the average power (N) of the noise signal part is determined by forming the difference of the average power (S+N) of the received signal values (14) and the average power (S) of the reference signal (15).

6. Method according to one of the claims 3 through 5, characterized in that a symbol error rate (23) or bit error rate is allocated to the calculated signal-to-noise ratio (22) for specifying a measured value for the transmission quality.

10 7. Transmission system for the transmission of digital information, comprising a transmitter (10) that contains:

- an encoding device for representing the digital information in the form of symbols, and
- a modulator for mapping the symbols onto signal values for the transmission via a transmission channel (4);

15 and comprising a receiver (12) that contains:

- a demodulator (20) for mapping received signal values (14) onto detected symbols (9); and
- a decoding device (24) for representing the detected symbols (9) as detected digital information;

20 and comprising a device for measuring the transmission quality of a transmission channel (4) for the transmission of digital information, whereby said device contains:

- a modulator for generating a reference signal (15), in that signal values are allocated to successively detected symbols (9), and
- a transmission quality determination device (11) for determining the transmission quality (22, 23) of the transmission channel (4) based on the reference signal (15) and on the received signal values (14).

30 8. Apparatus according to claim 7, characterized in that the apparatus also comprises:

- a device (24) for determining the average power (S) of the reference signal (15),

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- a device (29) for determining the average power (S+N) of the received signal values (14),
- a subtractor (30) for subtracting the average power (S) of the reference signal (15) from the average power (S+N) of the received signal values (14) and for generating the average power (N) of a noise signal part, and
- a divider (28) for calculating the signal-to-noise ratio (22) as criterion for the transmission quality by division of the average power (S) of the reference signal (15) by the average power (N) of the noise signal part.

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9. Method according to claim 7, characterized in that the apparatus also comprises:

- a device (24) for determining the average power (S) of the reference signal (15),
- a subtractor (26) for subtracting the reference signal (15) from the received signal values (14) and for generating a noise signal part,
- a device (25) for determining the average power (N) of the noise signal part, and
- a divider (28) for calculating the signal-to-noise ratio (22) as criterion for the transmission quality by dividing the average power (S) of the reference signal (15) by the average power (N) of the noise signal part.

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10. Apparatus according to one of the claims 7 through 9, characterized in that the apparatus also comprises an error rate determination device (12) that allocates a symbol error rate (23) or bit error rate to a calculated signal-to-noise ratio (22).